Contents of Volume 37 (1993)

No. 1, July 1993

Random Walking **1**

M. Di Giulio
Origin of Glutaminyl-tRNA Synthetase: An Example of Palimpsest? **5**

M. C. Gómez-Eichelmann, J. Ramírez-Santos
Methylated Cytosine at Dcm (CC$\overset{A}{\underset{T}{}}$GG) Sites in *Escherichia coli*: Possible Function and Evolutionary Implications **11**

H. Nishida, P. A. Blanz, J. Sugiyama
The Higher Fungus *Protomyces inouyei* has Two Group I Introns in the 18S rRNA Gene **25**

H. J. Breukelman, J. J. Beintema, E. Confalone, C. Costanzo, M. P. Sasso, A. Carsana, M. Palmieri, A. Furia
Sequences Related to the Ox Pancreatic Ribonuclease Coding Region in the Genomic DNA of Mammalian Species **29**

S. C. Ghivizzani, S. L. D. Mackay, C. S. Madsen, P. J. Laipis, W. W. Hauswirth
Transcribed Heteroplasmic Repeated Sequences in the Porcine Mitochondrial DNA D-loop Region **36**

W. S. Modi
Heterogeneity in the Concerted Evolution Process of a Tandem Satellite Array in Meadow Mice (*Microtus*) **48**

E. G. Shpaer, J. I. Mullins
Rates of Amino Acid Change in the Envelope Protein Correlate with Pathogenicity of Primate Lentiviruses **57**

S. Kojima, T. Hashimoto, M. Hasegawa, S. Murata, S. Ohta, H. Seki, N. Okada
Close Phylogenetic Relationship Between Vestimentifera (Tube Worms) and Annelida Revealed by the Amino Acid Sequence of Elongation Factor-1α **66**

I. von Ossowski, G. Hausner, P. C. Loewen
Molecular Evolutionary Analysis Based on the Amino Acid Sequence of Catalase **71**

A. von Haeseler, G. A. Churchill
Network Models for Sequence Evolution **77**

Letter to the Editor

M. Wallis
Remarkably High Rate of Molecular Evolution of Ruminant Placental Lactogens **86**

Erratum **89**

No. 2, August 1993

G. Bernardi
Genome Structure and Evolution: *Foreword* **91**

G. Sabeur, G. Macaya, F. Kadi, G. Bernardi
The Isochore Patterns of Mammalian Genomes and Their Phylogenetic Implications **93**

D. Mouchiroud, G. Bernardi
Compositional Properties of Coding Sequences and Mammalian Phylogeny **109**

A. T. Sumner, J. de la Torre, L. Stuppia
The Distribution of Genes on Chromosomes: A Cytological Approach **117**

G. Yagil
The Frequency of Two-Base Tracts in Eukaryotic Genomes **123**

G. Gutiérrez, J. L. Oliver, A. Marin
Dinucleotides and G + C Content in Human Genes: Opposite Behavior of GpG, GpC, and TpC at II-III Codon Positions and in Introns **131**

N. Sueoka
Directional Mutation Pressure, Mutator Mutations, and Dynamics of Molecular Evolution **137**

C. Saccone, C. Lanave, G. Pesole
Time and Biosequences **154**

L. C. Shimmin, B. H.-J. Chang, D. Hewett-Emmett, W.-H. Li
Potential Problems in Estimating the Male-to-Female Mutation Rate Ratio from DNA Sequence Data **160**

N. Okada, K. Ohshima
A Model for the Mechanism of Initial Generation of Short Interspersed Elements (SINEs) **167**

B. Marçais, A.-M. Laurent, J.-P. Charlieu, G. Roizès
Organization of the Variant Domains of α Satellite DNA on Human Chromosome 21 **171**

M. J. Stanhope, D. A. Tagle, M. S. Shivji, M. Hattori, Y. Sakaki, J. L. Slightom, M. Goodman
Multiple L1 Progenitors in Prosimian Primates: Phylogenetic Evidence from ORF1 Sequences **179**

A. R. Hoelzel, J. M. Hancock, G. A. Dover
Generation of VNTRs and Heteroplasmy by Sequence Turnover in the Mitochondrial Control Region of Two Elephant Seal Species **190**

O. Hungnes, K. Jønsrud, E. Tjøtta, B. Grinde
Sequence Comparison and Mutational Analysis of Elements that May Be Involved in the Regulation of DNA Synthesis in HIV-1 **198**

E. A. Griess, S. A. Rensing, K. D. Grasser, U.-G. Maier, G. Feix
Phylogenetic Relationships of HMG Box DNA-Binding Domains **204**

M. E. Fotaki, K. Iatrou
Silk Moth Chorion Pseudogenes: Hallmarks of Genomic Evolution by Sequence Duplication and Gene Conversion **211**

Y. Van de Peer, J.-M. Neefs, P. De Rijk, R. De Wachter
Reconstructing Evolution from Eukaryotic Small-Ribosomal-Subunit RNA Sequences: Calibration of the Molecular Clock **221**

No. 3, September 1993

J. C. Lacey, Jr., N. S. M. D. Wickramasinghe, G. W. Cook, G. Anderson
Couplings of Character and of Chirality in the Origin of the Genetic System **233**

M. Nei, N. Takahata
Effective Population Size, Genetic Diversity, and Coalescence Time in Subdivided Populations **240**

D. J. Miller, P. L. Harrison, T. J. Mahony, J. P. McMillan, A. Miles, D. M. Odorico, M. R. ten Lohuis
Nucleotide Sequence of the Histone Gene Cluster in the Coral *Acropora formosa* (Cnidaria; Scleractinia): Features of Histone Gene Structure and Organization are Common to Diploblastic and Triploblastic Metazoans **245**

J.-Y. Exposito, M. van der Rest, R. Garrone
The Complete Intron/Exon Structure of *Ephydatia mülleri* Fibrillar Collagen Gene Suggests a Mechanism for the Evolution of an Ancestral Gene Module **254**

F.-W. Schwaiger, E. Weyers, C. Epplen, J. Brün, G. Ruff, A. Crawford, J. T. Epplen
The Paradox of *MHC-DRB* Exon/Intron Evolution: α-helix and β-sheet Encoding Regions Diverge While Hypervariable Intronic Simple Repeats Coevolve with β-sheet Codons **260**

B. R. Morton
Chloroplast DNA Codon Use: Evidence for Selection at the *psb A* Locus Based on tRNA Availability **273**

D. M. Rand
Endotherms, Ectotherms, and Mitochondrial Genome-Size Variation **281**

V. Ramirez, P. Savoie, R. Morais
Molecular Characterization and Evolution of a Duck Mitochondrial Genome **296**

No. 4, October 1993

W. K. Thomas, T. H. Jukes
Allan C. Wilson 1934–1991 **311**

Ú. Árnason, A. Gullberg
Comparison Between the Complete mtDNA Sequences of the Blue and the Fin Whale, Two Species That Can Hybridize in Nature **312**

Ú. Árnason, A. Gullberg, E. Johnsson, C. Ledje
The Nucleotide Sequence of the Mitochondrial DNA Molecule of the Grey Seal, *Halichoerus grypus,* and a Comparison with Mitochondrial Sequences of Other True Seals **323**

G. Bernardi
Genome Organization and Species Formation in Vertebrates **331**

D. J. Dáiraghi, D. A. Clayton
Bovine RNase MRP Cleaves the Divergent Bovine Mitochondrial RNA Sequence at the Displacement-Loop Region **338**

M. Hasegawa, A. Di Rienzo, T. D. Kocher, A. C. Wilson
Toward a More Accurate Time Scale for the Human Mitochondrial DNA Tree **347**

D. M. Irwin, R. T. White, A. C. Wilson
Characterization of the Cow Stomach Lysozyme Genes: Repetitive DNA and Concerted Evolution **355**

J. R. Kornegay, T. D. Kocher, L. A. Williams, A. C. Wilson
Pathways of Lysozyme Evolution Inferred from the Sequences of Cytochrome *b* in Birds **367**

Y. Kumazawa, M. Nishida
Sequence Evolution of Mitochondrial tRNA Genes and Deep-Branch Animal Phylogenetics **380**

A. T. Lloyd, P. M. Sharp
Evolution of the *recA* Gene and the Molecular Phylogeny of Bacteria **399**

E. M. Prager
The Sequence-Immunology Correlation Revisited: Data for Cetacean Myoglobins and Mammalian Lysozymes **408**

T. W. Quinn, A. C. Wilson
Sequence Evolution in and Around the Mitochondrial Control Region in Birds **417**

J. D. Retief, R. J. Winkfein, G. H. Dixon, R. Adroer, R. Queralt, J. Ballabriga, R. Oliva
Evolution of Protamine P1 Genes in Primates **426**

U. Ritte, E. Neufeld, M. Broit, D. Shavit, U. Motro
The Differences Among Jewish Communities—Maternal and Paternal Contributions **435**

K. H. Wolfe, P. M. Sharp
Mammalian Gene Evolution: Nucleotide Sequence Divergence Between Mouse and Rat **441**

No. 5, November 1993

J. Galli, L. Wieslander
A New Member of the Balbiani Ring Multigene Family in the Dipteran *Chironomus tentans* Consists of a Single-Copy Version of a Unit Repeated in Other Gene Family Members **457**

G. M. Greig, P. E. Warburton, H. F. Willard
Organization and Evolution of an Alpha Satellite DNA Subset Shared by Human Chromosomes 13 and 21 **464**

M. Hasebe, M. Ito, R. Kofuji, K. Ueda, K. Iwatsuki
Phylogenetic Relationships of Ferns Deduced from *rbc*L Gene Sequence **476**

S. J. Newfeld, A. T. Schmid, B. Yedvobnick
Homopolymer Length Variation in the *Drosophila* Gene *mastermind* **483**

D. I. Nurminsky
Two Subfamilies of *MDG1* Retrotransposon with Different Evolutionary Histories in *D. melanogaster* **496**

R. Bleiweiss, J. A. W. Kirsch
Experimental Analysis of Variance for DNA Hybridization: I. Accuracy **504**

R. Bleiweiss, J. A. W. Kirsch
Experimental Analysis of Variance for DNA Hybridization: II. Precision **514**

M. Pélandakis, M. Solignac
Molecular Phylogeny of *Drosophila* Based on Ribosomal RNA Sequences **525**

F. Kadi, D. Mouchiroud, G. Sabeur, G. Bernardi
The Compositional Patterns of the Avian Genomes and Their Evolutionary Implications **544**

No. 6, December 1993

Notice to Our Readers and Authors **553**

B. Barbier, J. Visscher, A. W. Schwartz
Polypeptide-Assisted Oligomerization of Analogs in Dilute Aqueous Solution **554**

E. P. Leeflang, W.-M. Liu, I. N. Chesnokov, C. W. Schmid
Phylogenetic Isolation of a Human Alu Flounder Gene: Drift to New Subfamily Identity **559**

E. P. Leeflang, I. N. Chesnokov, C. W. Schmid
Mobility of Short Interspersed Repeats Within the Chimpanzee Lineage **566**

R. S. Gupta, G. B. Golding
Evolution of HSP70 Gene and Its Implications Regarding Relationships Between Archaebacteria, Eubacteria, and Eukaryotes **573**

G. Bernardi, D. Mouchiroud, C. Gautier
Silent Substitutions in Mammalian Genomes and Their Evolutionary Implications **583**

P. A. Thorpe, J. Loye, C. A. Rote, W. J. Dickinson
Evolution of Regulatory Genes and Patterns: Relationships to Evolutionary Rates and to Metabolic Functions **590**

C. Vernet, J. Boretto, M.-G. Mattéi, M. Takahashi, L. J. W. Jack, I. H. Mather, S. Rouquier, P. Pontarotti
Evolutionary Study of Multigenic Families Mapping Close to the Human MHC Class I Region **600**

J. Wakeley
Substitution Rate Variation Among Sites in Hypervariable Region 1 of Human Mitochondrial DNA **613**

S.-M. Chaw, H. Long, B.-S. Wang, A. Zharkikh, W.-H. Li
The Phylogenetic Position of Taxaceae Based on 18S rRNA Sequences **624**

A. Markoš, A. Miretsky, M. Müller
A Glyceraldehyde-3-Phosphate Dehydrogenase with Eubacterial Features in the Amitochondriate Eukaryote, *Trichomonas vaginalis* **631**

G. Bernardi, G. D'Onofrio, S. Caccio', G. Bernardi
Molecular Phylogeny of Bony Fishes, Based on the Amino Acid Sequence of the Growth Hormone **644**

N. Goldman
Simple Diagnostic Statistical Tests of Models for DNA Substitution **650**

Letter to the Editor
N. Goldman
Further Results on Error Minimization in the Genetic Code **662**

Index to Volume 37 **663**